Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

REVIEWS.

United States Geologic Atlas, Folio 42, Bidwell Bar, California. 1898.

This folio consists of six pages of text, signed by H. W. Turner, geologist, a topographic map of the district, a map showing the areal geology, and a map showing the economic features, with one page of special illustrations. The quadrangle represented in this folio lies between the parallels 39° 30′ and 40° north latitude and 121° 30′ and 121° west longitude. It comprises a portion of the northern Sierra Nevada and lies chiefly in Plumas and Butte counties. Except a small area in the southwest corner, the quadrangle is drained entirely by the Feather River. As in the other Gold Belt folios, the formations are divided into two main groups: The Bed Rock series, and the Superjacent series.

Bed Rock series.— In this quadrangle the Bed Rock series is comprised very largly of old igneous rocks with minor amounts of Palæozic sediments. In the northeast corner a single belt of slates, known to be of Juratrias age, is noted. The age of the Palæozoic rocks is known to be in part Carboniferous. In the Diadem lode there occur silicified tests of foraminifera, *Loftusia columbiana* Dawson, this being the first time this fossil has been found in California. Its age is Carboniferous. Other Carboniferous fossils were found at other points in the Calaveras formation. The igneous rocks belonging to the Bed Rock series may be grouped under three main headings:

1. Amphibolite and amphibolite schists, diorite and porphyrite. In all of the rocks of this series, excepting some of the porphyrite, there is a large amount of green aluminous amphibole. The main mass of the rocks of this group are metamorphic lavas and tuffs.

2. Magnesian rocks, comprising serpentine, talc, chlorite and colorless amphibole rocks, all of which appear to be merely different alteration products of rocks of the peridotite and pyroxenite family. The serpentine has resulted from the alteration of facies of the magma rich in olivine and rhombic pyroxene, and the talc, chlorite and colorless amphibole schists from other facies rich in aluminous pyroxene. The

colorless amphibole comprises probably both edenite and gedrite. The magnesian rocks above described are cut by soda-feldspar dikes, which appear to have a genetic connection with the peridotite-pyroxenite magma.

3. Granular intrusive rocks, mostly acid in character, including granite, granodiorite, quartz-diorite and gabbro. All of the granitic rocks are cut by dikes of aplite, which is regarded as the residual acid material of the magma squeezed up into cracks after the consolidation of the granitic rock; and by dikes of a fine grained diorite, which usually contains idiomorphic needles of brown amphibole. The occurrence of these fine grained diorites or diorite-porphyries in small dikes at widely separated intervals in the Sierra Nevada, suggests that they are the differentiation product of some other magma. These dike rocks are very similar in mineral and chemical composition at widely separated localities, and appear to be among the latest of the pre-Cretaceous intrusives, inasmuch as the dikes cut nearly all the pre-Cretaceous rocks. It does not seem possible to ascribe the origin of these dikes to a batholithic magma, underlying the range, inasmuch as the rock occurs almost nowhere in masses sufficiently large to be represented as areas on the geological maps. A genetic connection with the great granodiorite batholith underlying the Sierra Nevada, is suggested by the field relations of this diorite-porphyry.

Superjacent series.— The rocks of the Superjacent series in the Bidwell Bar quadrangle consist almost entirely of gravels and Tertiary lavas, and tuffs. During the Neocene period the Bidwell Bar quadrangle was a country of low relief, as were other portions of the Gold Belt. The Auriferous river gravels formation represents deposits made by the rivers of the Neocene period. These are very largely covered at the present time by lavas. While volcanic rocks are very abundant, there appears to have been few volcanoes in the district. The lavas come chiefly from vents located in the Downieville quadrangle, which lies just east. This is not true, however, of the lavas of the plateau west of the north fork of the Feather. These originated in the Lassen Peak volcanic area.

West of Franklin Hill is the base of a former volcano. The Superjacent volcanic rocks are grouped under the following heads:

Basalt:
  Older basalt, with litle olivine.
  Later basalt, dark colored and rich in olivine.

Andesite :

Hornblende-andesite, tuff or breccia.
Fine grained hypersthene-andesite.

South of Campbell Peak in the canyon of Fall River, is a dike-like mass of fragmental andesite. This is exposed in the bed of the river, and it extends vertically up the sides of the canyon. In the dike material are embedded the fragments of fossil wood (sequoia) It is clear that this dike represents a fissure opened by an earthquake (?) and filled in by the fragmental andesite from above.

Meadow Valley in the northeast corner represents a depressed area, the result of faulting in early Pleistocene time. During a portion of the Pleistocene, this valley was occupied by a lake.

On the northeast slope of Spanish Peak ridge are fine moraines, and evidences of glacial action were found also at many other points. The lowest elevation which sheltered on its north slope a glacier during the glacial period, is the ridge southwest of Buck's Valley. At one point what appeared to be a morainal pond had been formed by a small glacier. The top of the ridge south of this pond has an elevation of only 5800 feet. As a general rule it may be said that in the Sierra Nevada, all those slopes which now shelter snow banks during the entire season, nourished glaciers during the glacial period.

Structure.— A figure is introduced into the text, showing the general parallelism of the schistosity to the granitic masses, which represent intrusions into the schistose rocks. It will be noted, however, that narrow tongues of the granitic rocks at some points cut directly across the schistosity, and it appears probable that the schistosity in the main was developed at a period antecedent to the granitic intrusions and that the parallelism of the lines of schistosity to the contact of the entering granite, is due to these masses being forced aside by the intrusive rock, the separation of the schistose masses taking place most readily parallel to the schistosity. There is evidence of faulting on an extensive scale in the northeast portion of the quadrangle to the east of Spanish Peak, and faulting was noted at the head of Dogwood Creek. A photograph of this fault scarp is reproduced on the illustrations sheet.

Economic geology.— The economic features of the district include a description of the gold vein deposits, and of manganese, iron, chromite and lime and marble deposits. While quartz is the ordinary vein material of the gold deposits, one instance of an auriferous barite vein is noted.